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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,241	04/04/2005	Kihac Yang	9525-2	9659
30448	7590	09/25/2006		
AKERMAN SENTERFITT P.O. BOX 3188 WEST PALM BEACH, FL 33402-3188				
EXAMINER UPTON, CHRISTOPHER				
ART UNIT		PAPER NUMBER		

1724

DATE MAILED: 09/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/530,241

Applicant(s)

YANG ET AL.

Examiner

Christopher Upton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 1 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. Applicant's election without traverse of claims 2-8 in the reply filed on 8/29/2006 is acknowledged.

2. It is noted that the PCT Search Report cites a number of Korean references. Copies of these references are requested, in order that they may be considered.

3. Claims 2-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims should be clarified as to the sequence of units claimed and their relationship to each other. For example, it is unclear if the first and second contact layers are different, or if they are simply a plurality of layers. The connection of the various elements is unclear, for example, if the precipitator is connected to both the collection tank and collecting hopper in parallel or if they form a series; and similarly for the circulation unit, precipitator and collection tank. In claim 7, it is unclear as to whether the collection tank comprises three tanks or one, and what the structure or interconnections of the tanks are. While references to the drawings are permissible in claims, the claims should be clear and definite without requiring reference to the drawings.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 4, 5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pruss, Levine or Buell, each in view of Laak, Quick, Ingram or Suzuki.

Pruss, Levine and Buell each disclose a sequence of a collection tank, biofilm treatment reactor, and a precipitation tank, with recycle of some of the clarified effluent to the collection tank, substantially as claimed. The instant claims differ from the references in recitation of plural layers of biofilm contact media. It is well known to provide a plurality of layers in a biofilm contact reactor, as exemplified by Laak, Quick, Ingram and Suzuki. It would therefore have been obvious for one skilled in the art to substitute a multi-layer reactor for the single layer reactors of Pruss, Levine and Buell, to increase aeration and improve the treatment.

6. Claims 2-5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Savage in view of Laak, Quick, Ingram or Suzuki.

Savage discloses a sequence of a collection tank, biofilm treatment reactor, and a precipitation tank, with recycle of some of the clarified effluent to the collection tank, and with a further nitrogen treatment tank, substantially as claimed. The instant claims differ from Savage in recitation of plural layers of biofilm contact media. It is well known to provide a plurality of layers in a biofilm contact reactor, as exemplified by Laak, Quick, Ingram and Suzuki. It would therefore have been obvious for one skilled

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in the art to substitute a multi-layer reactor for the single layer reactor of Savage, to increase aeration and improve the treatment.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 2 above, and further in view of Leung or Carmignani.

Claim 6 differs from claim 2 in recitation of a titanium and UV reactor. It is known to treat water with such a reactor, as exemplified by Leung and Carmignani. It would therefore have been obvious for one skilled in the art to add a titanium/UV reactor to the treatment sequences of the references as applied to claim 2, to provide for tertiary treatment and disinfection prior to discharge.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The two Japanese references cited in the PCT Search Report have been made of record.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Upton whose telephone number is 571-272-1169. The examiner can normally be reached on 7:30-5:00, off every other Monday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, consisting of a large, stylized 'C' followed by a horizontal line and a loop.

Christopher Upton
Primary Examiner
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